EPA

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

REGION: 6 | SITE NUMBER (to be assigned by HQ): NM1223075515

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent reports or additional inquiries and on-site inspections.

PRELIMINARY REPORT
This does not constitute final opinion of EPA

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II (Preliminary Assessment). File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

NM 1223075515

A. SITE NAME	B. STREET (or other identifier)		
UNC San Mateo Mine	T.13N. R.8E. sec. 30 NE¼ 5½ mi. W. of San Mateo on SR 53. 2½ mi.SE on dirt road.		
C. CITY	**D. STATE**	**E. ZIP CODE**	**F. COUNTY NAME**
San Mateo (approx.4 miles east of site)	NM	87050	Cibola

G. OWNER/OPERATOR (If known)

1. NAME: U.S. Forest Service / Rare Metals Corp. 1959-1962 / El Paso Natural Gas 1962-1964 / United Nuclear Corp. 1964-1971
2. TELEPHONE NUMBER: (505) 287-8833 (USFS) (505) 883-6901 (UNC)

H. TYPE OF OWNERSHIP

[X] 1. FEDERAL [ ] 2. STATE [ ] 3. COUNTY [ ] 4. MUNICIPAL [ ] 5. PRIVATE [ ] 6 UNKNOWN

I. SITE DESCRIPTION UNC San Mateo Mine is an unreclaimed, inactive, uranium mine having large spoils piles which are actively eroding into a nearby arroyo and ephemeral creek.

J. HOW IDENTIFIED (i.e., citizen's complaints, OSHA citations, etc.) Site investigated in the course of the following two studies: EPA 520/1-83-007, 1983 and EID/GWH-86/2, 1986

K. DATE IDENTIFIED (mo., day, & yr.) 1983

L. PRINCIPAL STATE CONTACT

1. NAME: Randy Merker
2. TELEPHONE NUMBER: (505) 827-2862

II. PRELIMINARY ASSESSMENT (complete this section last)

196059

A. APPARENT SERIOUSNESS OF PROBLEM

[ ] 1. HIGH [X] 2. MEDIUM [ ] 3. LOW [ ] 4. NONE [ ] 5. UNKNOWN

B. RECOMMENDATION

[ ] 1. NO ACTION NEEDED (no hazard)

[X] 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR: MAR 26 1992
b. WILL BE PERFORMED BY:

SUPERFUND FILE

[ ] 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

REORGANIZED

[ ] 4. SITE INSPECTION NEEDED (low priority)

Q.F. 11/20/89

C. PREPARER INFORMATION

1. NAME: Randy Merker - NM EID
2. TELEPHONE NUMBER: (505) 827-2862
3. DATE (mo., day, & yr.): June 30, 1988

III. SITE INFORMATION

A. SITE STATUS

[ ] 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if intermittently.)

[X] 2. INACTIVE (Those sites which no longer receive wastes.)

[ ] 3. OTHER (specify): (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

B. IS GENERATOR ON SITE?

[ ] 1. NO [X] 2. YES (specify generator's four-digit SIC Code): 1094

C. AREA OF SITE (in acres)	D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES	
	1. LATITUDE (deg.—min.—sec.)	2. LONGITUDE (deg.—min.—sec.)
approx. 100 acres	35° 19' 43" N	107° 43' 12" W

E. ARE THERE BUILDINGS ON THE SITE?

[X] 1. NO [ ] 2. YES (specify): Reports of 1979 and 1980 indicate that only building foundations remain. Ore bin and 20' high metal tank present in 1980.

Continue On Reverse

IV. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking the appropriate boxes.

A. TRANSPORTER	B. STORER	C. TREATER	D. DISPOSER
	X 1. PILE	X 1. FILTRATION	1. LANDFILL
2. SHIP	X 2. SURFACE IMPOUNDMENT	2. INCINERATION	2. LANDFARM
3. BARGE	3. DRUMS	3. VOLUME REDUCTION	3. OPEN DUMP
X 4. TRUCK	X 4. TANK, ABOVE GROUND	X 4. RECYCLING/RECOVERY	X 4. SURFACE IMPOUNDMENT
5. PIPELINE	5. TANK, BELOW GROUND	X 5. CHEM./PHYS. TREATMENT	5. MIDNIGHT DUMPING
6. OTHER (specify):	6. OTHER (specify):	6. BIOLOGICAL TREATMENT	6. INCINERATION
		7. WASTE OIL REPROCESSING	7. UNDERGROUND INJECTION
		8. SOLVENT RECOVERY	X 8. OTHER (specify): Spoils Pile
		X 9. OTHER (specify): Settling of solids from extracted mine water.	

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

A.4. Shipped ore from mine site to Kermac mill, presumably by truck.
B.4. Possible chemical storage in above ground tank (Anderson, 1981)

PRELIMINARY REPORT
This does not constitute final opinion of EPA

V. WASTE RELATED INFORMATION

A. WASTE TYPE

1 UNKNOWN | X 2. LIQUID | X 3. SOLID | 4. SLUDGE | 5. GAS

B. WASTE CHARACTERISTICS

1. UNKNOWN | X 2. CORROSIVE | 3. IGNITABLE | X 4. RADIOACTIVE | 5 HIGHLY VOLATILE
X 6. TOXIC | 7 REACTIVE | 8. INERT | 9 FLAMMABLE

10. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below. Incomplete Records Only. Minewater discharge known to be 670 gallons per minute in February 1960. Analyses of spoils-pile sediment and sediment leachate available (NMEID, 1986).

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT: Unknown	AMOUNT:	AMOUNT:	AMOUNT: Unknown	AMOUNT: 6×10^6	AMOUNT: Unknown
UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE: Cubic Feet	UNIT OF MEASURE:
X (1) PAINT, PIGMENTS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify):	(2) NON-HALOGNTD SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify):	(3) CAUSTICS	X (3) MILLING/ MINE TAILINGS	X (3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMLTG. WASTES	(4) MUNICIPAL
X (5) OTHER (specify): settling-pond sludge			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (specify):
			(6) CYANIDE	(6) OTHER (specify):	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify)		

Continue On Page 3

Continued From Page 2

V. WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE (place in descending order of hazard).

Radium-226	Arsenic
Uranium	Lead
Selenium	Vanadium
Molybdenum	Barium

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

Active erosion of the spoils pile and heap leach pile has resulted in observed releases of contaminants to drainage sediments and surface water. Sediment samples from adjacent drainages (Figure 2) contain elevated concentrations of radium-226, molybdenum, (Continued)

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH	X			Exposure to arsenic, selenium, lead and the decay products of uranium.
3. NON-WORKER INJURY/EXPOSURE	X			and radium-226. as above; and open shaft (EPA, 1983).
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY	X			See 7 & 8 below
6. CONTAMINATION OF FOOD CHAIN	X			cattle graze in the area and have easy access to the site and runoff.
7. CONTAMINATION OF GROUND WATER	X			Observed degredation of ground-water quality along San Mateo Creek (Table 1).
8. CONTAMINATION OF SURFACE WATER	X		1982-1983	Observed contamination of surface water and drainage sediments (Table 2 & Figure 3).
9. DAMAGE TO FLORA/FAUNA	X			Low pH of leachate and runoff.
10. FISH KILL				
11. CONTAMINATION OF AIR	X			Unreclaimed spoils piles; poorly vegetated; potential to be windblown.
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL		X	1983	Observed contamination of drainage sediments (Figure 3).
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS				
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS		X	1980, 1982	Erosion of spoils piles noted during site visits. (Anderson 1981, NMEID, 1986).
19. INADEQUATE SECURITY		X	1980	"present fence is in poor condition and is ineffective". (Anderson, 1981).
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specify):				

Continued From Front

VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE. None Known

☐ 1. NPDES PERMIT ☐ 2. SPCC PLAN ☐ 3. STATE PERMIT (specify): _____
☐ 4. AIR PERMITS ☐ 5. LOCAL PERMIT ☐ 6. RCRA TRANSPORTER
☐ 7. RCRA STORER ☐ 8. RCRA TREATER ☐ 9. RCRA DISPOSER

☐ 10. OTHER (specify): _____

B. IN COMPLIANCE?

☐ 1. YES ☐ 2. NO ☐ 3. UNKNOWN

4. WITH RESPECT TO (list regulation name & number): _____

VIII. PAST REGULATORY ACTIONS

☒ A. NONE ☐ B. YES (summarize below)

None Known

IX. INSPECTION ACTIVITY (past or on-going)

☐ A. NONE ☒ B. YES (complete items 1,2,3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
Inspections and Certifications	1959,1960	AEC	to certify validity of operation and eligibility for bonus payments.
Site Inspection and sediment sampling	~ 1983	EPA	EPA study: "Potential Health & Environmental Hazards of Uranium Mine Wastes".
Sediment and surface water runoff sampling	~ 1986	NMEID	NMEID Study: "Impacts of Uranium Mining on Surface and Shallow Ground Waters,

X. REMEDIAL ACTIVITY (past or on-going) Grants Mineral Belt, NM".

☒ A. NONE ☐ B. YES (complete items 1, 2, 3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment (Section II) information on the first page of this form.

Continuation Sheet

UNC SAN MATEO MINE - PRELIMINARY ASSESSMENT

V.C.4.

selenium, and gross alpha particle activity (Figure 3). Surface water samples (Figure 2) contained elevated levels of arsenic, lead, molybdenum, selenium, uranium, and vanadium as well as elevated gross alpha and gross beta particle activities (Table 2). The release of these contaminants to surface water may be due primarily to entrained sediment rather than leaching of contaminants from the waste piles (NM EID, 1986); see Table 3. Elevated concentrations of uranium, molybdenum, selenium, gross alpha particle activity, and gross beta particle activity were observed in wells down-gradient from the UNC San Mateo Mine as compared to wells up-gradient (Table 1). These elevated concentrations maybe primarily related to surface discharge of mine dewatering effluent rather than from tailings pile leachate (NM EID, 1986). The observed contamination in the down-gradient wells may be attributable to effluent discharged from mines upstream from the UNC San Mateo Mine.

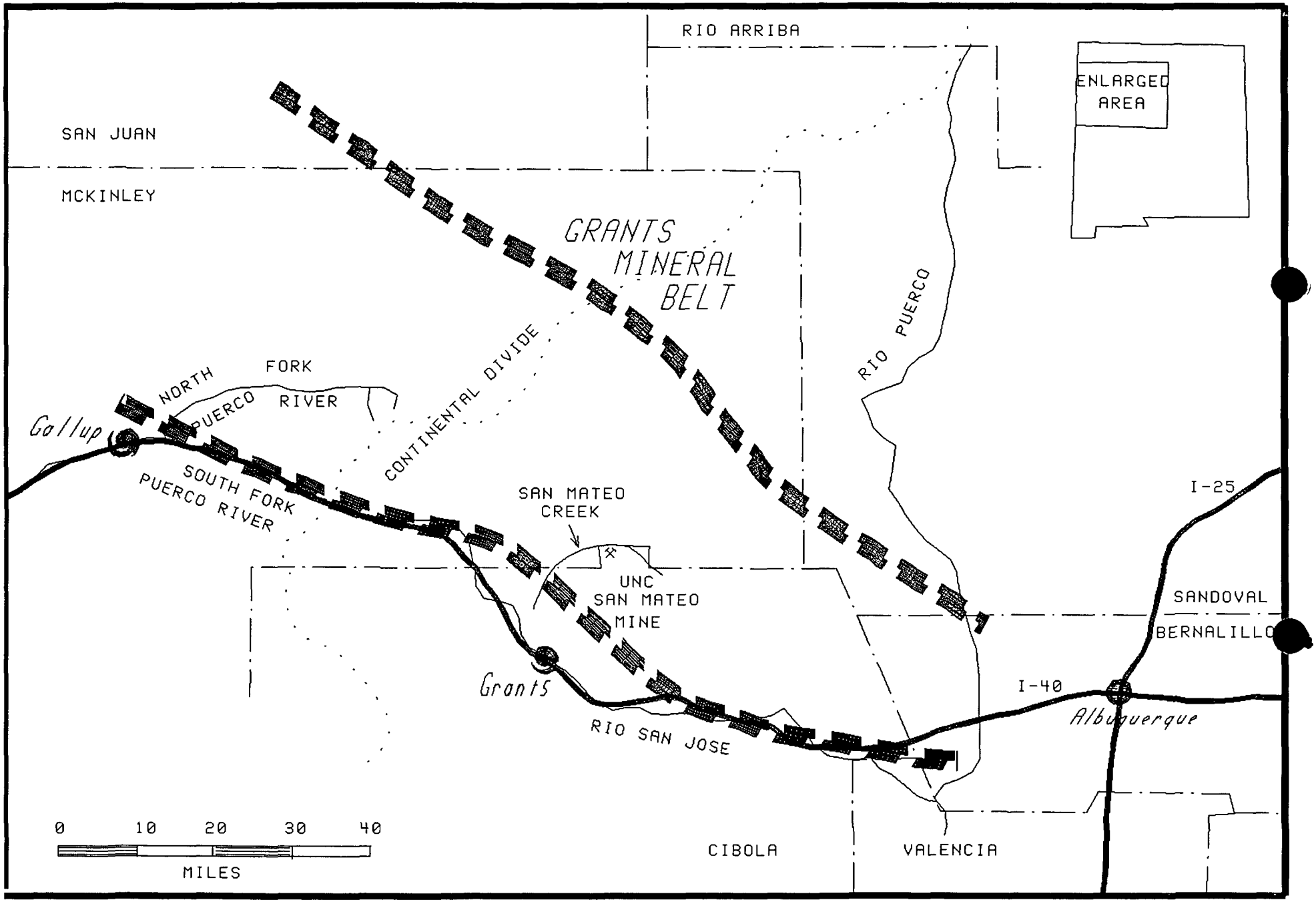

FIGURE 1. LOCATION OF UNC SAN MATEO MINE, GRANTS MINERAL BELT, NM.

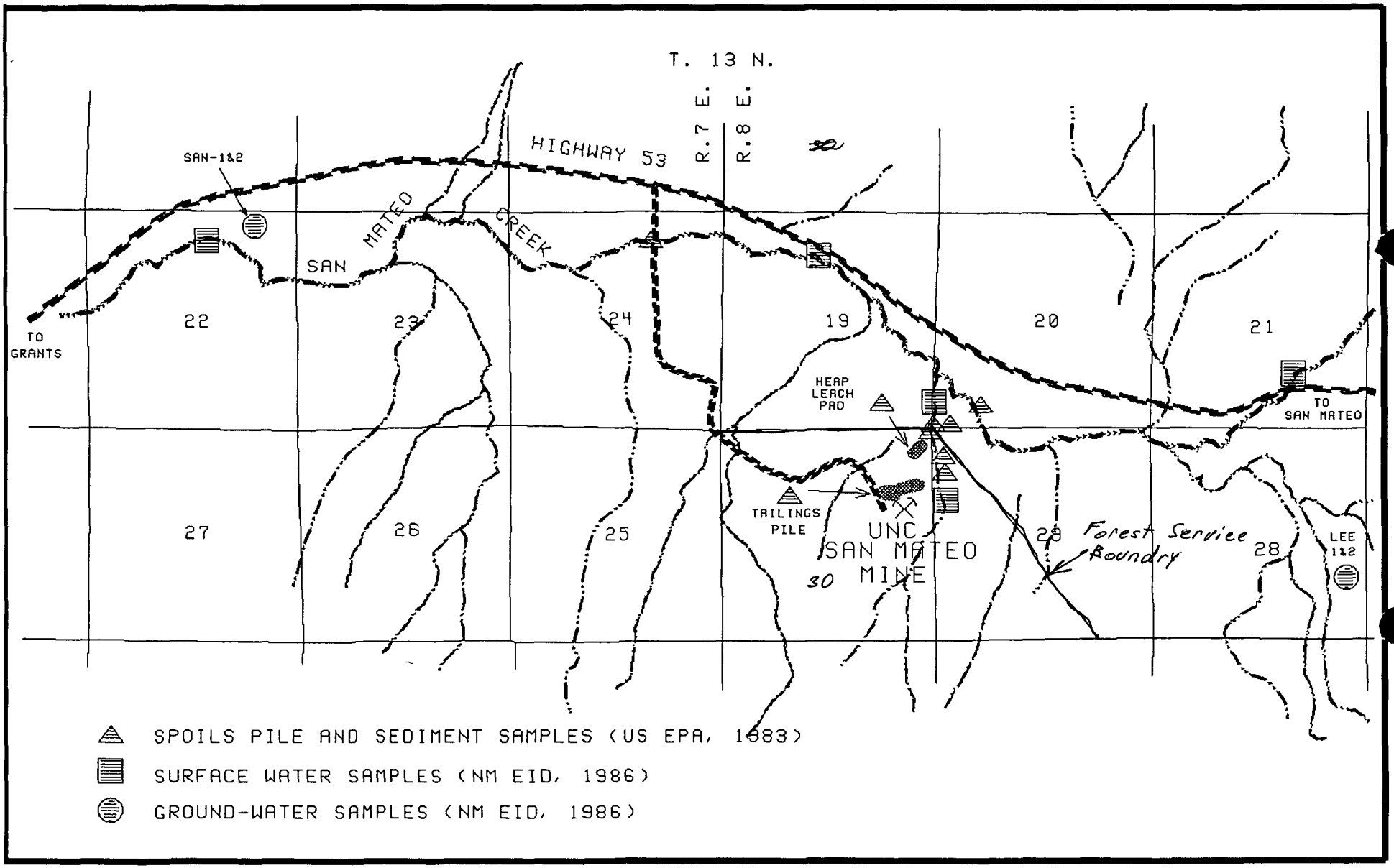

FIGURE 2. UNC SAN MATEO MINE - SAMPLE LOCATIONS.

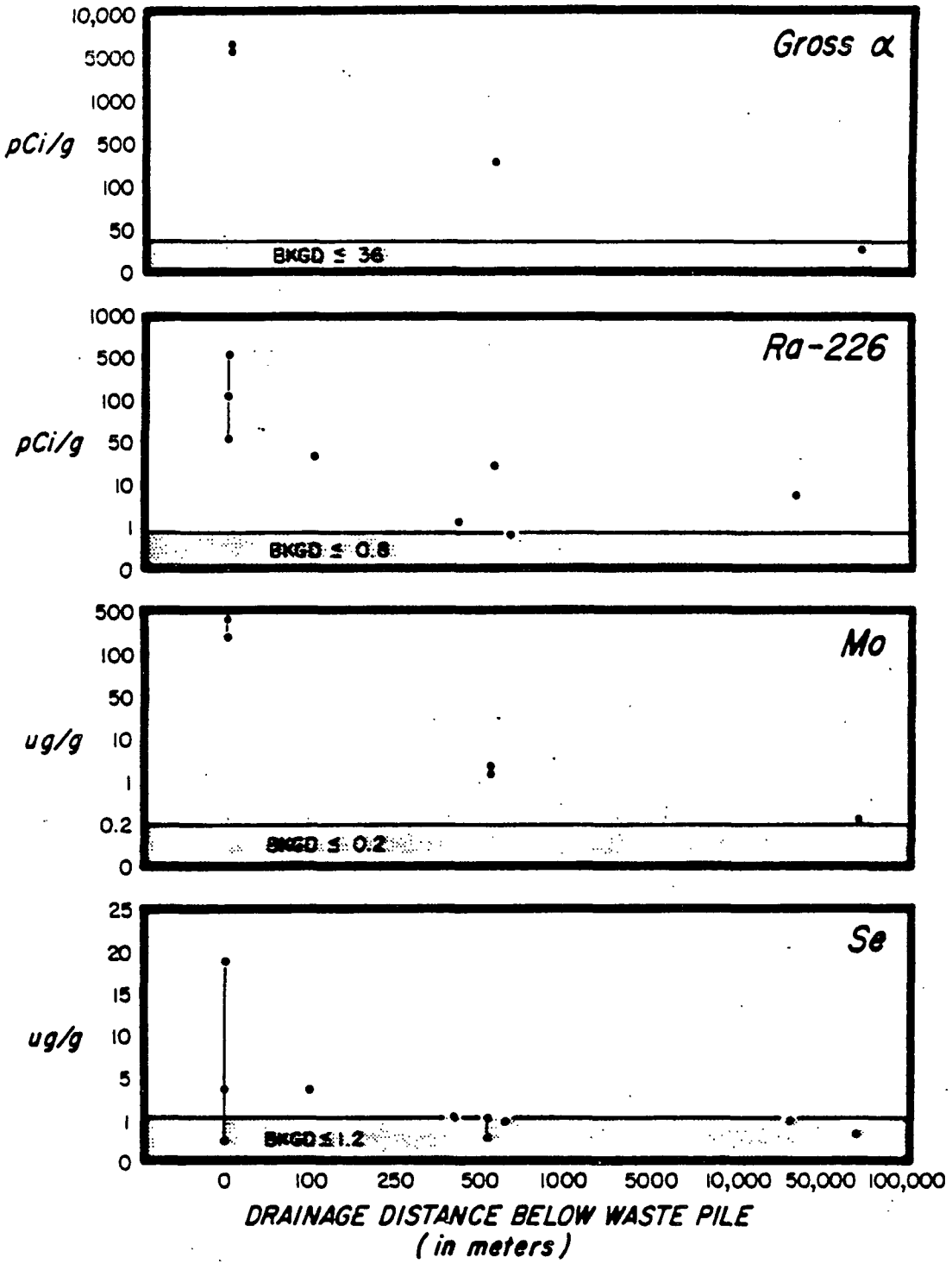

FIGURE 3. Persistence/attenuation of selected contaminants in sediments within the drainage system below the UNC San Mateo Mine waste pile. Each analysis is represented by dot; some stations have multiple analyses. Three nearby stations were used to define natural background levels. NM EID, 1986.

TABLE 1. UNC San Mateo Mine - Mean trace element and radionuclide concentrations in wells in the San Mateo Creek drainage system, 1977-1982. Number of samples for each well is shown in parentheses and well locations are indicated in Figure 2.
Data from NM EID, 1986.

Constituent	Lee-1 (13)	Lee-2 (14)	San-1 (13)	San-2 (12)
As (ug/1)	ND	6.8	ND	ND
Ba (ug/1)	133	113	112	108
Cd (ug/1)	ND	ND	ND	ND
Pb (ug/1)	ND	ND	ND	ND
Mo (ug/1)	ND	9.6	133	131
Se (ug/1)	ND	ND	18.5	18.0
U (ug/1)	ND	ND	222	251
V (ug/1)	ND	12	ND	ND
Zn (ug/1)	ND	ND	ND	ND
Ra-226 (pCi/1)	0.05	0.04	0.15	0.09
Gross Alpha (pCi/1)	4	6.6	184	209
Gross Beta (pCi/1)	3	4	89	96

ND - not analytically detected

Table 2. UNC San Mateo Mine - Contaminant concentrations in waste-pile runoff as compared to natural runoff. Number of samples in parentheses. After NMEID, 1986.

CONSTITUENT	MINE WASTE PILE RUNOFF Range	Median	NATURAL RUNOFF Range	Median	
		(mg/l)			
As	0.13-1.5	0.5 (6)	0.05-0.26	0.13	(6) ✓
Ba	1.7-37.5	10.9 (6)	1.4-43.5	7.7	(6)
Cd	0.004-0.02	0.01 (6)	0.003-0.05	0.006	(6)
Pb	0.44-2.5	1.3 (6)	0.05-2.0	0.52	(6)
Mo	<0.01-32	7.6 (6)	0.005-<0.01	<0.01	(6) ✓
Se	<0.005-0.85	0.2 (6)	<0.005-0.15	0.03	(6) ✓
U-natural	0.04-131	34.4 (6)	0.03-0.56	0.10	(6) ✓
V	0.63-24.8	7.5 (6)	0.18-3.2	0.61	(6) ✓
Zn	1-4.4	2.2 (6)	0.38-1.7	1.5	(6)
		(pCi/l)			
Gross Alpha	1,810-420,000	123,935 (6)	33-2,100	1,200	(5) ✓
Gross Beta	1,150-168,000	47,725 (6)	546-2,000	1,060	(5) ✓

TABLE 3. UNC San Mateo Mine - Results of Mine Waste Leaching Tests of 8 composite samples (EP Toxicity Water Extract).

Constituent	Average Concentration	NM Ground-Water Standard
As	0.029 mg/l	0.1 mg/l
Ba	0.162 mg/l	1.0 mg/l
Cd	0.003 mg/l	0.01 mg/l
Pb	<0.005 mg/l	0.05 mg/l
Mo	0.955 mg/l	1.0 mg/l *
Se	0.069 mg/l	0.05 mg/l
U-natural	1.42 mg/l	5 mg/l
V	0.011 mg/l	no established standard
Zn	<0.05 mg/l	10.0 mg/l
Gross Alpha	1030 pCi/l	15 pCi/l **
Gross Beta	164 pCi/l	4 millirem/yr **

*Standard for irrigation use; not established for domestic use.
**Natural intermim primary Drinking water standard, 1976.

Leach Test Data from NM EID, 1986.

NM122 3075515

REFERENCES CITED

Anderson, Orin J.; 1981; Abandoned or inactive uranium mines in New Mexico; NM Bur. of Mines and Min. Res. OFR 148.

NM EID; 1986; Impacts of uranium mining on surface and shallow ground waters Grants Mineral Belt, New Mexico; EID/GWH-86/2.

US EPA; 1983; Potential health and environmnental hazards of uranium mine wastes; EPA 520/1-83-007.